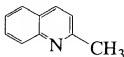


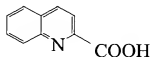
# CLAIMS

What is claimed is:

1. A process for the microbial oxidation of the compound of Formula II



- 5 to the compound of Formula I



which comprises:

- contacting said compound of Formula II with a microorganism capable of accomplishing the oxidation of the methyl group of the compound of Formula II to the carboxyl group of the compound of Formula I, and

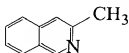
incubating the resultant mixture under suitable conditions to yield an amount of the compound of Formula I.

2. The process as defined in claim 1 wherein said microorganism is selected from the group consisting of *Cunninghamella echinulata* ATCC No. 9244, *Cunninghamella echinulata* ATCC No. 8688a, *Cunninghamella echinulata* ATCC No. 26269, *Cunninghamella echinulata* ATCC No. 8983, *Cunninghamella echinulata* ATCC No. 10028b, *Cunninghamella echinulata* ATCC No. 9245, *Cunninghamella echinulata* ATCC No. 36112, *Cunninghamella homothallica* ATCC No. 16161, *Alternaria solani* ATCC No. 11078, *Penicillium glabrum* ATCC No. 11080, *Diplodia gossypina* ATCC No. 20575, *Absidia repens* ATCC No. 14849, *Absidia repens* ATCC No. 74481, *Aspergillus tamaris* ATCC No. 16865, and *Glomerella lagenaria* ATCC No. 14724; and suitable mutants thereof.

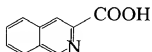
3. The process as defined in claim 2 wherein said microorganism is selected from the group consisting of *Cunninghamella echinulata* ATCC No. 9244, *Cunninghamella echinulata* ATCC No. 8688a, *Cunninghamella echinulata* ATCC No. 26269, *Cunninghamella echinulata* ATCC No. 8983, *Cunninghamella echinulata* ATCC No. 10028b, *Cunninghamella echinulata* ATCC No. 9245, *Cunninghamella echinulata* ATCC No. 36112, *Cunninghamella homothallica* ATCC No. 16161,

*Alternaria solani* ATCC No. 11078, *Penicillium glabrum* ATCC No. 11080, and *Diplodia gossypina* ATCC No. 20575; and suitable mutants thereof.

4. A process for the microbial oxidation of the compound of Formula IV



to the compound of Formula III



which comprises:

- 5 contacting said compound of Formula IV with a microorganism capable of accomplishing the oxidation of the methyl group of the compound of Formula IV to the carboxyl group of the compound of Formula III, and

incubating the resultant mixture under suitable conditions to yield an amount of the compound of Formula III.

5. The process as defined in claim 4 wherein said microorganism is selected from the group consisting of *Cunninghamella echinulata* ATCC No. 9244, *Cunninghamella echinulata* ATCC No. 8688a, *Cunninghamella echinulata* ATCC No. 26269, *Cunninghamella echinulata* ATCC No. 8983, *Cunninghamella echinulata* ATCC No. 10028b, *Cunninghamella echinulata* ATCC No. 9245, *Cunninghamella echinulata* ATCC No. 36112, *Cunninghamella homothallica* ATCC No. 16161, *Alternaria solani* ATCC No. 11078, *Penicillium glabrum* ATCC No. 11080, *Diplodia gossypina* ATCC No. 20575, *Absidia repens* ATCC No. 14849, *Absidia repens* ATCC No. 74481, *Aspergillus tamaris* ATCC No. 16865, *Glomerella lagenaria* ATCC No. 14724, *Rhodococcus rhodochrous* ATCC No. 19067, *Pseudomonas putida* ATCC No. 33015 and *Pseudomonas putida* ATCC No. 202190; and suitable mutants thereof;

- provided that where said microorganism is said *Pseudomonas putida* ATCC No. 33015 or said *Pseudomonas putida* ATCC No. 202190, said *Pseudomonas putida* ATCC No. 33015 or said *Pseudomonas putida* ATCC No. 202190 is induced by interaction with an inducer prior to said contacting of said *Pseudomonas putida*

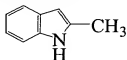
ATCC No. 33015 or said *Pseudomonas putida* ATCC No. 202190 with said compound of Formula IV.

6. The process as defined in claim 5 wherein said microorganism is selected from the group consisting of *Cunninghamella echinulata* ATCC No. 8688a, *Alternaria solani* ATCC No. 11078, *Diplodia gossypina* ATCC No. 20575, *Aspergillus tamarii* ATCC No. 16865, *Glomerella lagenaria* ATCC No. 14724, *Pseudomonas putida* ATCC No. 33015 and *Pseudomonas putida* ATCC No. 202190; and suitable mutants thereof.

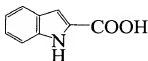
7. The process as defined in claim 6 wherein said microorganism is *Aspergillus tamarii* ATCC No. 16865.

8. The process as defined in claim 6 wherein said inducer is benzyl alcohol.

9. A process for the microbial oxidation of the compound of Formula VI



to the compound of Formula V



- 5 which comprises:

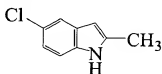
contacting said compound of Formula VI with a microorganism capable of accomplishing the oxidation of the methyl group of the compound of Formula VI to the carboxyl group of the compound of Formula V, and

- 10 incubating the resultant mixture under suitable conditions to yield an amount of the compound of Formula V.

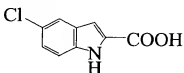
10. The process as defined in claim 9 wherein said microorganism is selected from the group consisting of *Cunninghamella echinulata* ATCC No. 8688a, *Cunninghamella echinulata* ATCC No. 8983, *Cunninghamella echinulata* ATCC No. 10028b, and *Rhodococcus rhodochrous* ATCC No. 19067; and suitable mutants thereof.

11. The process as defined in claim 10 wherein said microorganism is selected from the group consisting of *Rhodococcus rhodochrous* ATCC No. 19067 and suitable mutants thereof.

12. A process for the microbial oxidation of the compound of Formula VIII



to the compound of Formula VII



5 which comprises:

contacting the compound of Formula VIII with a microorganism capable of accomplishing the oxidation of the methyl group of the compound of Formula VIII to the carboxyl group of the compound of Formula VII, and

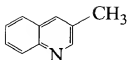
10 incubating the resultant mixture under suitable conditions to yield an amount of the compound of Formula VII.

13. The process defined in claim 12 wherein said microorganism is selected from the group consisting of *Cunninghamella echinulata* ATCC No. 9244, *Cunninghamella echinulata* ATCC No. 8688a, *Cunninghamella echinulata* ATCC No. 26269, *Cunninghamella echinulata* ATCC No. 8983, *Cunninghamella echinulata* ATCC No. 10028b, *Cunninghamella echinulata* ATCC No. 9245, *Cunninghamella echinulata* ATCC No. 36112, *Cunninghamella homothallica* ATCC No. 16161, *Alternaria solani* ATCC No. 11078, *Penicillium glabrum* ATCC No. 11080, *Diplodia gossypina* ATCC No. 20575, *Absidia repens* ATCC No. 14849, *Absidia repens* ATCC No. 74481, *Glomerella lagenaria* ATCC No. 14724, *Rhodococcus rhodochrous* ATCC No. 19067; and suitable mutants thereof.

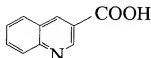
14. The process as defined in claim 13 wherein said microorganism is selected from the group consisting of *Rhodococcus rhodochrous* ATCC No. 19067 and suitable mutants thereof.

15. A process for the microbial oxidation of the compound of Formula X

5



to the compound of Formula IX



which comprises:

- 10 contacting the compound of Formula X with a microorganism capable of accomplishing the oxidation of the methyl group of the compound of Formula X to the carboxyl group of the compound of Formula IX, and

- incubating the resultant mixture under suitable conditions to yield an amount of the compound of Formula IX, wherein said microorganism is selected from the group consisting of *Pseudomonas putida* ATCC No. 33015 and *Pseudomonas putida* ATCC No. 202190; and suitable mutants thereof;

15

provided that said microorganism is induced by interaction with an inducer prior to said contacting of said microorganism with said 3-methylquinoline.

16. The process as defined in claim 15 wherein said inducer is benzyl alcohol.

17. A process for the microbial oxidation of the compound of Formula XII



- 5 to the compound of Formula XI



which comprises:

- contacting the compound of Formula XII with a microorganism capable of accomplishing the oxidation of the methyl group of the compound of Formula XII to the carboxyl group of the compound of Formula XI, and

10

incubating the resultant mixture under suitable conditions to yield an amount of the compound of Formula XI, wherein said microorganism is selected from the group consisting of *Pseudomonas putida* ATCC No. 33015 and *Pseudomonas putida* ATCC No. 202190; and suitable mutants thereof;

- 15 provided that said microorganism is induced by interaction with an inducer prior to said contacting of said microorganism with said 8-methylquinoline.

18. The process as defined in claim 17 wherein said inducer is benzyl alcohol.

19. The process as defined in claim 1 wherein said microorganism is an intact microorganism, and further comprising isolating said compound of Formula I by extraction of said mixture with an organic solvent, and subjecting said extraction to chromatography.

20. The process as defined in claim 4 wherein said microorganism is an intact microorganism, and further comprising isolating said compound of Formula III by extraction of said mixture with an organic solvent, and subjecting said extraction to chromatography.

21. The process as defined in claim 9 wherein said microorganism is an intact microorganism, and further comprising isolating said compound of Formula V by extraction of said mixture with an organic solvent, and subjecting said extraction to chromatography.

22. The process as defined in claim 12 wherein said microorganism is an intact microorganism, and further comprising isolating said compound of Formula VII by extraction of said mixture with an organic solvent, and subjecting said extraction to chromatography.

23. The process as defined in claim 15 wherein said microorganism is an intact microorganism, and further comprising isolating said compound of Formula IX by extraction of said mixture with an organic solvent, and subjecting said extraction to chromatography.

24. The process as defined in claim 17 wherein said microorganism is an intact microorganism, and further comprising isolating said compound of Formula XI by extraction of said mixture with an organic solvent, and subjecting said extraction to chromatography.